



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**

REGION 4  
SAM NUNN  
ATLANTA FEDERAL CENTER  
61 FORSYTH STREET  
ATLANTA GEORGIA 30303-8960

September 22, 2014

Mr. Curtis Chambellan  
CLWR SEIS Document Manager  
Department of Energy  
National Nuclear Security Administration  
P.O. Box 5400  
Albuquerque, NM 87185-5400

SUBJ: EPA Review and Comments  
Draft Supplemental Environmental Impact Statement (DSEIS)  
For the Production of Tritium in a Commercial Light Water Reactor  
CEQ No. 20140217

Dear Mr. Chambellan:

Pursuant to Section 309 of the Clean Air Act (CAA) and Section 102(2)(C) of the National Environmental Policy Act (NEPA), the U.S. Environmental Protection Agency (EPA), Region 4 reviewed the Draft Supplemental Environmental Impact Statement (DSEIS) for the Production of Tritium in a Commercial Light Water Reactor, August 2014. We appreciate your coordination with us. The purpose of this letter is to transmit the results of the EPA's review.

This DSEIS is the result of the U.S. Department of Energy (DOE), National Nuclear Security Administration (NNSA) analysis of the potential impacts from tritium-producing burnable absorber rods (TPBARs) irradiation at TVA sites, based on a high (conservative) estimate of the tritium permeation rate and the NNSA's revised estimate of the maximum number of TPBARs necessary to support the nation's tritium supply requirements.

The proposed action is to irradiate up to a total of 2,500 TPBARs every 18 months in one or more Tennessee Valley Authority (TVA) nuclear reactors. The Preferred Alternative identified in the DSEIS is for this action to take place at Watts Bar Nuclear Plant, Unit 1 in Tennessee (Alternative 1). The DSEIS states that Alternative 1 is preferred because TPBAR irradiation operations could be conducted entirely at the site at which tritium irradiation operations currently occur, and potentially in the one reactor that has supported the NNSA's tritium production program.

Based on our review, EPA Region 4 is rating the Preferred Alternative an EC-2, meaning that there are environmental concerns that should be addressed, and that additional information is requested in the Final SEIS (FSEIS). Our detailed comments and Summary of Rating Definitions and Follow Up Action are enclosed.

In conclusion, the DSEIS provides useful information for the assessment of the proposed action to irradiate TPBARs in support of the nation's national security needs. Thank you for the opportunity to comment on this project. We look forward to reviewing the FSEIS. If you have any questions, please contact Ramona McConney of my staff at 404-562-9615.

Sincerely,

A handwritten signature in black ink, appearing to read "Heinz Mueller", with a stylized, cursive script.

Heinz J. Mueller, Chief  
NEPA Program Office  
Office of Environmental Accountability

Enclosures: EPA Review and Comments  
Summary of Rating Definitions and Follow Up Action

**EPA Review and Comments**  
**Draft Supplemental Environmental Impact Statement**  
**For the Production of Tritium in a Commercial Light Water Reactor**

General

Alternative 1, the NNSA's Preferred Alternative, provides for the TVA to irradiate up to a total of 2,500 TPBARs every 18 months at the Watts Bar Nuclear Plant site, and would not irradiate TPBARs for tritium production at the Sequoyah Nuclear Plant site. (Alternatives 2, 3, 5, and 6, and the No Action Alternative involve the Sequoyah site.) The TVA is currently completing construction of Watts Bar Unit 2 nuclear reactor, and that reactor is expected to begin operations in 2015. The DSEIS states that although the TVA has no current plans to apply for a license amendment to allow Watts Bar Unit 2 to produce tritium, the SEIS evaluates the potential environmental impacts associated with the use of Watts Bar Unit 2 in order to provide the flexibility to use it in the future.

*Recommendations:* The FSEIS should clarify the physical and structural integrity of the existing Watts Bar facility, and address maintenance plans pertaining to facility aging. Additional information pertaining to structural integrity and facility aging (data, analyses, and/or discussions) should be included (or referenced as appropriate) in the FSEIS.

Emergency Preparedness

The U.S. Geological Survey (USGS) recently released updated 2014 seismic hazard maps for the U.S., and we recommend that these maps be evaluated in relation to the proposed project location and surrounding area and supporting infrastructure.

*Recommendations:* The recently updated USGS 2014 seismic hazard maps should be evaluated in relation to the proposed project location and facilities. The evaluation should include assessment of the structural integrity and status of the existing on-site structures, on-site and local infrastructure, and emergency preparedness procedures in the event of seismic activity. Emergency preparedness should also include planning in case of a regional emergency. The FSEIS should include updated information pertaining to the new seismic hazard maps, and issues that are identified in the seismic hazard evaluation should be addressed as the project progresses.

Radioactive Waste

Storage, transportation and disposition of radionuclides are issues of particular and ongoing concern. The EPA commented on the NRC's *Waste Confidence Draft Generic Environmental Impact Statement* regarding the pending update to the Waste Confidence Rule. The EPA's comment letter was submitted to the NRC on January 15, 2014.

The *Generic Environmental Impact Statement for Continued Storage of Spent Nuclear Fuel* (GEIS) was recently published and is currently under review. The document discusses the environmental impacts of continued storage, including those impacts identified in the remand by the Court of Appeals in the *New York v. NRC* decision, and provides a regulatory basis for a revision to 10 CFR 51.23 that addresses the environmental impacts of continued storage for use

in future environmental reviews. TVA operations in relation to radionuclides would be required to comply with any regulatory requirements resulting from the Record of Decision that occurs as a result of the pending updated Rule.

Within the context of the requirements of the NNSA, the Preferred Alternative appears to be the most reasonable alternative. However, a consequence of this action would be an increase in the amount of spent nuclear fuel produced and residing at the Watts Bar site, until a national policy is in place providing for the permanent disposition of spent nuclear fuel. This on-site storage could potentially continue until the year 2035. The additional spent nuclear fuel generated would be about 24 percent of the total spent fuel generated for normal reactor operations at Watts Bar annually.

*Recommendation:* The FSEIS should include updated information regarding the decision making process for the Waste Confidence Rule (continued storage) in relationship to this project. The FSEIS should address how radioactive waste handling, storage, and disposition will be conducted at the facility under circumstances where long-term onsite storage is required. The FSEIS should clarify the potential changes in direct, indirect and cumulative impacts that may occur as a result of the updated Rule.

#### *Radionuclides in Groundwater and Surface water*

Although the tritium concentration in the discharge plume would be below the EPA drinking water limit within about 70 feet of the diffusers under Alternative 1 (page S-38), the release of tritiated water into the Tennessee River is an ongoing concern that will require monitoring as the project progresses. The DSEIS discusses mitigation measures for dilution, systems to enable TVA to plan fewer releases each year, and measures to ensure that site effluents will continue to remain well below regulatory concentration limits. Section 3.1.5.2.2 discusses past tritium releases to groundwater and actions taken to address this at the Watts Bar site. The DSEIS notes that groundwater monitoring is ongoing.

*Recommendation:* The FSEIS should provide updated information regarding surface water and groundwater sampling and monitoring plans related to the Preferred Alternative. Project planning should involve consultation with appropriate resource agencies.

#### *Socioeconomics*

The EPA encourages the project team to continue coordinating with the communities that may be impacted by the proposed project, and to continue a comprehensive public outreach strategy to inform residents of the potential risks and impacts that may occur as a result of the proposed project.

*Recommendations:* Public outreach should include, but is not limited to, targeted outreach campaigns to neighbors, informational literature, and updated websites. Traffic impacts and emergency preparedness measures are particular topics that should be addressed as the project progresses.

### Environmental Justice (EJ)

The DSEIS states that irradiation of 2,500 TPBARs would not cause meaningful health risks to the public, and that radiological doses would remain well below the annual dose limits (Section 4.1.11). The DSEIS states that under normal or accident conditions, there would be no disproportionately high and adverse consequences to minority or low-income populations. In addition, no unique exposure pathways that could increase doses were identified.

The DSEIS includes demographic and impact data related to minority and low-income populations. The NNSA assessed the potential for disproportionately high and adverse health and environmental impacts, and concluded that there are no environmental pathways by which the identified EJ populations in the region would be likely to suffer disproportionately high and adverse environmental or health impacts as a result of the proposed project.

*Recommendations:* Communities with EJ concerns may experience both benefits and burdens associated with this project, and should be involved in meaningful discussions with the project team throughout the decision-making process. We encourage the project team to continue coordinating with the communities that may be impacted by the project. Meaningful involvement and discussion of project issues should take place throughout project planning.

Efforts to meaningfully involve and outreach to residents near the site and with increased visibility to the facility's structures and its emissions should be made. In addition, cumulative impacts, especially regarding surface water and drinking water sources, should be monitored as the project progresses.

### Endangered and Threatened Species

The DSEIS summarizes the NNSA's coordination with the U.S. Fish and Wildlife Service (FWS) and state wildlife agencies. The U.S. Fish and Wildlife Service and the State of Tennessee list several terrestrial and aquatic species that occur in the vicinity of the Watts Bar site as endangered, threatened, or candidates for listing as endangered or threatened (Table 3-11). The DSEIS states that there would be no changes to river water temperature, entrainment and impingement of aquatic species, or significant adverse impacts on Federal and State threatened and endangered species. The DSEIS concludes that the operation of Watts Bar (Alternative 1) would have no effect on Federally listed species.

*Recommendations:* The EPA defers to the FWS and the State wildlife agencies on these issues, and recommends that the FSEIS should provide updated information regarding the project team's coordination with the FWS and State agencies.

### Indirect and Cumulative Impacts

The preliminary determination is that potential cumulative impacts for the proposed project would vary, depending on the resource. The DSEIS evaluates potential cumulative impacts on resources including air, water, aquatic ecology, terrestrial ecology, human health, socioeconomics and cultural resources.

*Recommendations:* The FSEIS should provide updated information regarding the project team's outreach and coordination with the resource agencies regarding avoidance and mitigation planning for impacts, and we recommend that continuing coordination take place as the project proceeds in order to minimize direct, indirect and cumulative impacts. We recommend that impacts be avoided to the extent feasible, and that unavoidable impacts be mitigated in consultation with resource agency recommendations.

#### *Historic Preservation*

The DSEIS includes a discussion of cultural and historic resources, and describes the project team's coordination with the Tennessee State Historic Preservation Office (SHPO). In the past, the SHPO determined that tritium production at Watts Bar would have no effect upon properties listed or eligible for listing in the National Register. The DSEIS states that the Preferred Alternative would not result in any changes to historic or cultural resources.

*Recommendations:* The FSEIS should include an update of coordination activities and correspondence with the SHPO regarding the proposed project.

#### *Greenhouse Gases (GHGs)*

The DSEIS reviewed the expected greenhouse gas emissions of the proposed action. Under Alternative 1, greenhouse gas (GHG) emissions (7,100 tons of carbon dioxide annually) would be essentially the same as from normal operation without TPBAR irradiation (page 2-23).

*Recommendations:* Efforts should be made to minimize GHG emissions to the extent feasible. Clean energy options, such as energy efficiency and renewable energy, should be a consideration in the purchase of maintenance equipment and vehicles. In addition, the EPA recommends that the project team thoroughly consider the need for measures to manage potential climate-related impacts, such as potential increases in storm frequency and intensity resulting in increased floodwater flows. The FSEIS should address measures for climate change adaptation for the project, taking into consideration site-specific conditions. Please refer to EPA's website ([www.epa.gov/climatechange](http://www.epa.gov/climatechange)) for useful information about climate change.

## **SUMMARY OF RATING DEFINITIONS AND FOLLOW UP ACTION\***

### **Environmental Impact of the Action**

#### **LO-Lack of Objections**

The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

#### **EC-Environmental Concerns**

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impacts. EPA would like to work with the lead agency to reduce these impacts.

#### **EO-Environmental Objections**

The EPA review has identified significant environmental impacts that must be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

#### **EU-Environmentally Unsatisfactory**

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS state, this proposal will be recommended for referral to the CEQ.

### **Adequacy of the Impact Statement**

#### **Category 1-Adequate**

The EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collecting is necessary, but the reviewer may suggest the addition of clarifying language or information.

#### **Category 2-Insufficient Information**

The draft EIS does not contain sufficient information for the EPA to fully assess the environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

#### **Category 3-Inadequate**

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

\*From EPA Manual 1640 Policy and Procedures for the Review of the Federal Actions Impacting the Environment